



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D119-796-241
Job Sheet 170327



Part No: D119-796-241

Job Qty: 1 ea

Part Name: Aft Crosstube Installation Without Step (No Hardware)



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 1/15/18

Job Tracking No:

Due Date: 1/19/18

Created By: Marie Lajeunesse

Type: Stock

Description:

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	1 Ea		1/16/18	0.00	0.00	Start Up Crosstubes-1		DP2
120	Packaging	1 pcs		1/16/18	0.00	0.00	Packaging1-1		DP2
130	CNC Bend Crosstubes	1 pcs		1/16/18	4.67	4.17	CNC Bend Crosstube		DP2 / GP
140	QC	1 pcs		1/16/18	0.00	0.00	QC15		38
145	Crosstubes	1 pcs		1/16/18	0.00	3.30	Crosstubes-1		38
150	Crosstubes	1 pcs		1/16/18	0.00	3.30	Crosstubes-1		38
160	HandFXtube	1 pcs		1/17/18	0.00	1.28	HandFinish5		38
170	QC	1 pcs		1/17/18	0.00	0.00	QC7-1		38
175	QC	1 pcs		1/17/18	0.00	0.00	QC5		38
180	Outsource	1 pcs		1/18/18			SKY002-VC		38
190	Packaging	1 pcs		1/18/18	0.00	0.00	Packaging2		38
200	QC	1 pcs		1/18/18	0.00	0.00	QC5		38
230	SprayPaint	1 pcs		1/18/18	0.00	1.31	Spray Paint		38
240	QC	1 pcs		1/18/18	0.00	0.00	QC14		38
242	Crosstubes	1 pcs		1/18/18	0.00	3.30	Crosstubes-1		38
244	QC	1 pcs		1/18/18	0.00	0.00	QC5		38
246	SprayPaint	1 pcs		1/18/18	0.00	1.31	Spray Paint		38
248	SprayPaint	1 pcs		1/18/18	0.00	1.31	Spray Paint		38
250	QC	1 pcs		1/18/18	0.00	0.00	QC14		38
252	Crosstubes	1 pcs		1/19/18	0.00	3.30	Crosstubes-1		38
260	QC	1 pcs		1/19/18	0.00	0.00	QC5		38
270	Packaging	1 pcs		1/19/18	0.00	0.00	Packaging1-1		38
280	QC	1 pcs		1/19/18	0.00	0.00	QC4		38
285	DC	1 pcs		1/19/18	0.00	0.00	DC		38
290	Packaging	1 pcs		1/19/18	0.00	0.00	Packaging3-1		38
300	QC21-FG	1 Ea		1/19/18	0.00	0.00	QC21		38

Part Op 130 - Bend tube as per Dwg D119-796-241 using CNC bender program

Descriptions: 145 - 1- CUT TUBE AT HEIGHT ON FAI SHEET

150 - ***** ENSURE PROPER JIG POSITIONING *****

160 - ***IMMEDIATELY AFTER GRINDING***

180 - *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

190 - Ensure copy of NDT results attached to work order.

200 - *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Inspect for damage & ensure results are as per Dwg D119-796-241

230 - ***VERIFY BY _____ BATCH # TO MATCH W/O _____

240 - ***VERIFY BY _____ BATCH # TO MATCH W/O _____

M138687 Primer

242 - Assemble as per dwg D119-796-241 and QSI 2- Install D5152-043 with proseal 890 on concave surface, 0.100" MIN thick as per dwg using DT10112 (identified right and left) 3- Install center support without bonbing. 4- Install Damper support and contact pads using proseal 890 per dwg and clamp in position. 138843 exp 11/18

244 - ***VERIFY BY _____ BATCH # TO MATCH W/O _____

246 - ***VERIFY BY _____ BATCH # TO MATCH W/O _____

248 - ***VERIFY BY _____ BATCH # TO MATCH W/O _____

250 - ***VERIFY BY _____ BATCH # TO MATCH W/O _____

252 - 1- Re-install non fixed hardware per dwg ***Torque clamps on damper and contact pad to 80-100 IN-LBS.*** 2- Apply a filet-seal of proseal 890 around damper supports and contact pads. Primer 138847 Clear 138832

260 - ***RE-CHECK TORCQUE ON CLAMP AFTER PROSEAL HAS CURED AS PER DWG.*** 1- ATTACH A RED TAG TO CENTER SUPPORT THAT READS CENTER SUPPORT NOT FIXED THEN DATE AND STAMP IT. Paint 138825

285 - Photocopy bluefile and create labels as per PPP D119-796-241 chg 004

290 - Identify and pack for shipping as per PPP D119-796-241 on w/o 176936

Job Allocations

Operation	Component Part	Required	Inventory	Allocated	Std Qty
90-Start up Operation	D119-796-241TRN	1	7	0	0
242-Crosstubes	CR3212-4-07 M138333-10	16	210	0	0
252-Crosstubes	D2873-043	4	1	0	0
	D5122-1	1	12	0	0
	D5123-1	2	277	0	0
	D5123-5	2	222	0	0
	D5134-041	1	14	0	0
	D5134-042	1	8	0	0
	D5136-1	1	9	0	0
	D5136-2	1	9	0	0
	D5152-043	2	14	0	0
	D5515-1	2	6	0	0
	MS21920-25	6	149	0	0
	MS21920-28	2	112	0	0
270-Packaging	AN174-3A	2	68	0	0
	MS210424	2	3	0	0
	NAS1149D0432J	1	628	0	0

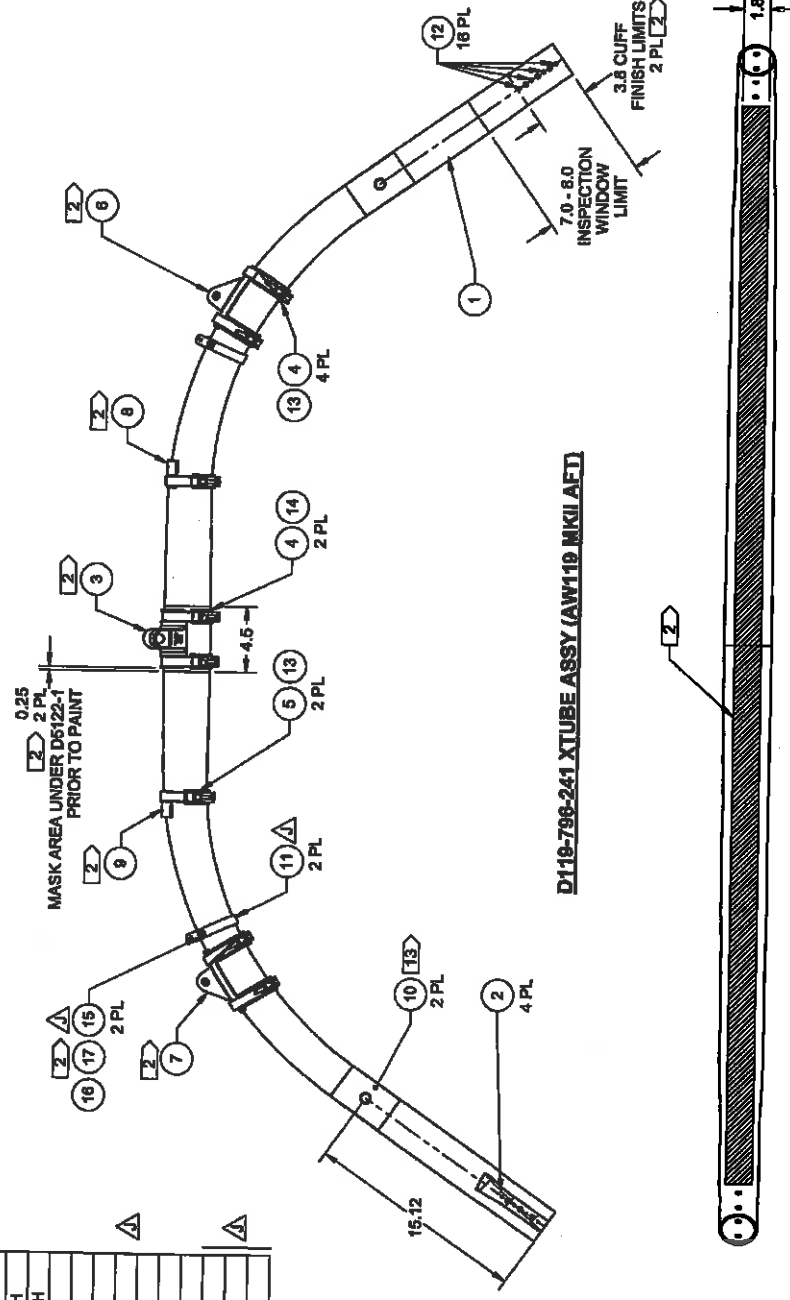
Part Specifications

Spec No	Description	Target/Tolerance	Limits	Type	Special Comments
1	Crosstube Assembly (AW119 MKII Aft)	5.880Inches ± 0.030	5.910 5.850		
2	Crosstube Assembly (AW119 MKII Aft)	2.516Inches + 0.005 - 0.000	2.521 2.516		
3	Crosstube Assembly (AW119 MKII Aft)	2.626Inches + 0.005 - 0.000	2.631 2.626		
4	Crosstube Assembly (AW119 MKII Aft)	2.627Inches + 0.005 - 0.000	2.632 2.627		
5	Crosstube Assembly (AW119 MKII Aft)	2.798Inches + 0.005 - 0.000	2.803 2.798		
6	Crosstube Assembly (AW119 MKII Aft)	2.799Inches + 0.005 - 0.000	2.804 2.799		
7	Crosstube Assembly (AW119 MKII Aft)	2.989Inches + 0.005 - 0.000	2.994 2.989		
8	Crosstube Assembly (AW119 MKII Aft)	3.191Inches + 0.005 - 0.000	3.196 3.191		
9	Crosstube Assembly (AW119 MKII Aft)	3.200Inches + 0.005 - 0.000	3.205 3.200		
10	Crosstube Assembly (AW119 MKII Aft)	5.880Inches ± 0.030	5.910 5.850		
11	Crosstube Assembly (AW119 MKII Aft)	2.516Inches + 0.005 - 0.000	2.521 2.516		
12	Crosstube Assembly (AW119 MKII Aft)	2.626Inches + 0.005 - 0.000	2.631 2.626		
13	Crosstube Assembly (AW119 MKII Aft)	2.627Inches + 0.005 - 0.000	2.632 2.627		
14	Crosstube Assembly (AW119 MKII Aft)	2.798Inches + 0.005 - 0.000	2.803 2.798		
15	Crosstube Assembly (AW119 MKII Aft)	2.799Inches + 0.005 - 0.000	2.804 2.799		

16	Crosstube Assembly (AW119 MKII Aft)	2.989Inches	+ 0.005 - 0.000	2.994 2.989
17	Crosstube Assembly (AW119 MKII Aft)	3.191Inches	+ 0.005 - 0.000	3.196 3.191
18	Crosstube Assembly (AW119 MKII Aft)	3.200Inches	+ 0.005 - 0.000	3.205 3.200
19	Crosstube Assembly (AW119 MKII Aft)	105.710Inches	± 0.020	105.730 105.690

Plex 1/15/18 9:51 AM Dart.lajeunesse.marie

ITEM	QTY	P/N	DESCRIPTION
	X	D119-796-241	XTUBE ASSY (AW119 MKI AFT)
1	1	D119-796-241BND	CROSS TUBE, AFT
2	4	D2873-043	RADIUS BLOCK
3	1	D5122-1	CENTER SUPPORT
4	6	D5123-1	CLAMP CUSHION
5	2	D5123-5	CLAMP CUSHION
6	1	D5134-041	DAMPER SUPPORT ASSY, LH
7	1	D5134-042	DAMPER SUPPORT ASSY, RH
8	1	D5136-1	CONTACT PAD, LH
9	1	D5136-2	CONTACT PAD, RH
10	2	D5162-043	AFT POST MOUNT ASSY
11	2	D5515-1	GROUNDING CLAMP
12	18	CR2212-4-07	CSK RIVET, CHERRY MAX
13	6	MS21820-25	CLAMP
14	2	MS21820-28	CLAMP
15	2	MS27036-1-08	SCREW, PAN-HEAD
16	2	MS21042-3	NUT
17	4	NAS1148D0332J	WASHER

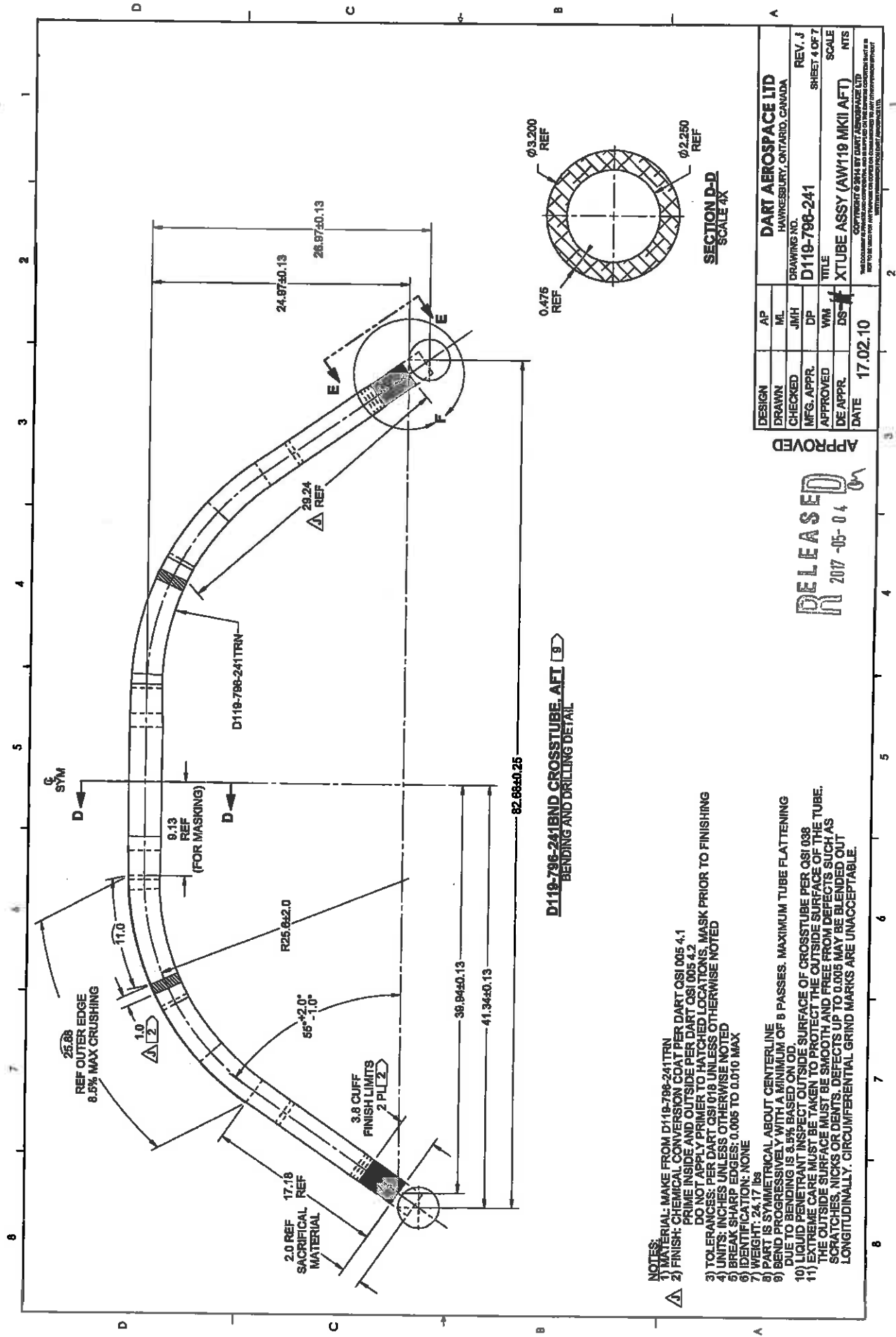


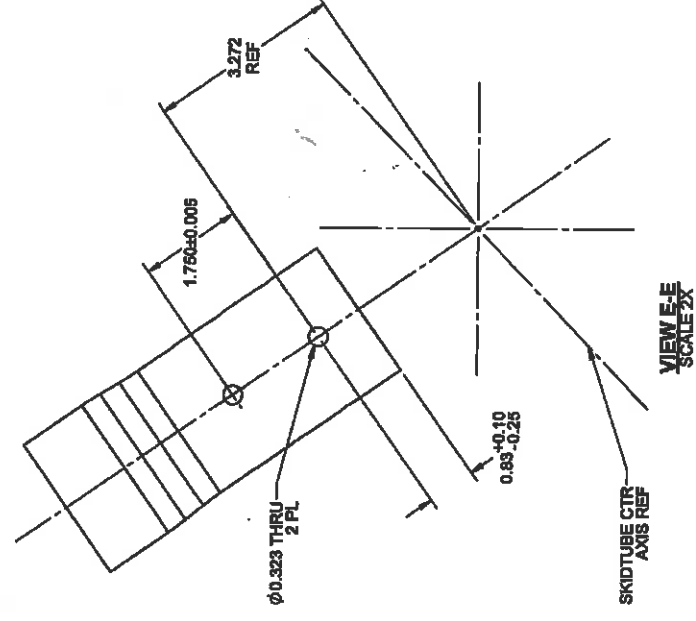
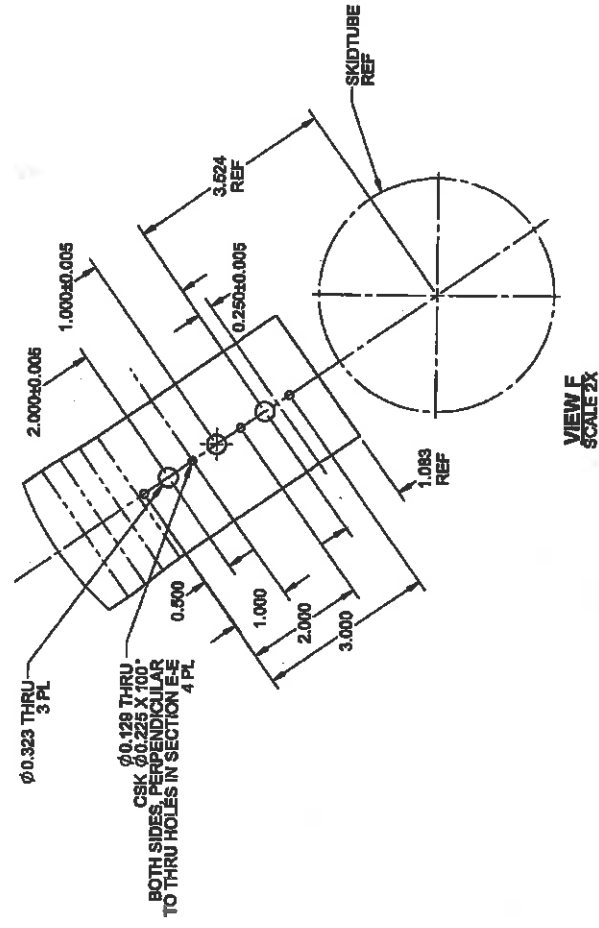
D119-796-241 XTUBE ASSY (AW119 MKI AFT)

DESIGN	AP	DART AEROSPACE LTD
DRAWN	ML	HAWKESBURY, ONTARIO, CANADA
CHECKED	JMH	DRAWING NO.
MFG. APPR.	DP	D119-796-241
APPROVED	WM	TITLE
DE APPR.	DS	XTUBE ASSY (AW119 MKI AFT)
DATE	17.02.10	SCALE
		MTS

RELEASED
2017-05-04

NOT TO BE USED FOR ANY PURPOSE OR IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF DART AEROSPACE LTD.





RELEASED
2017-05-04

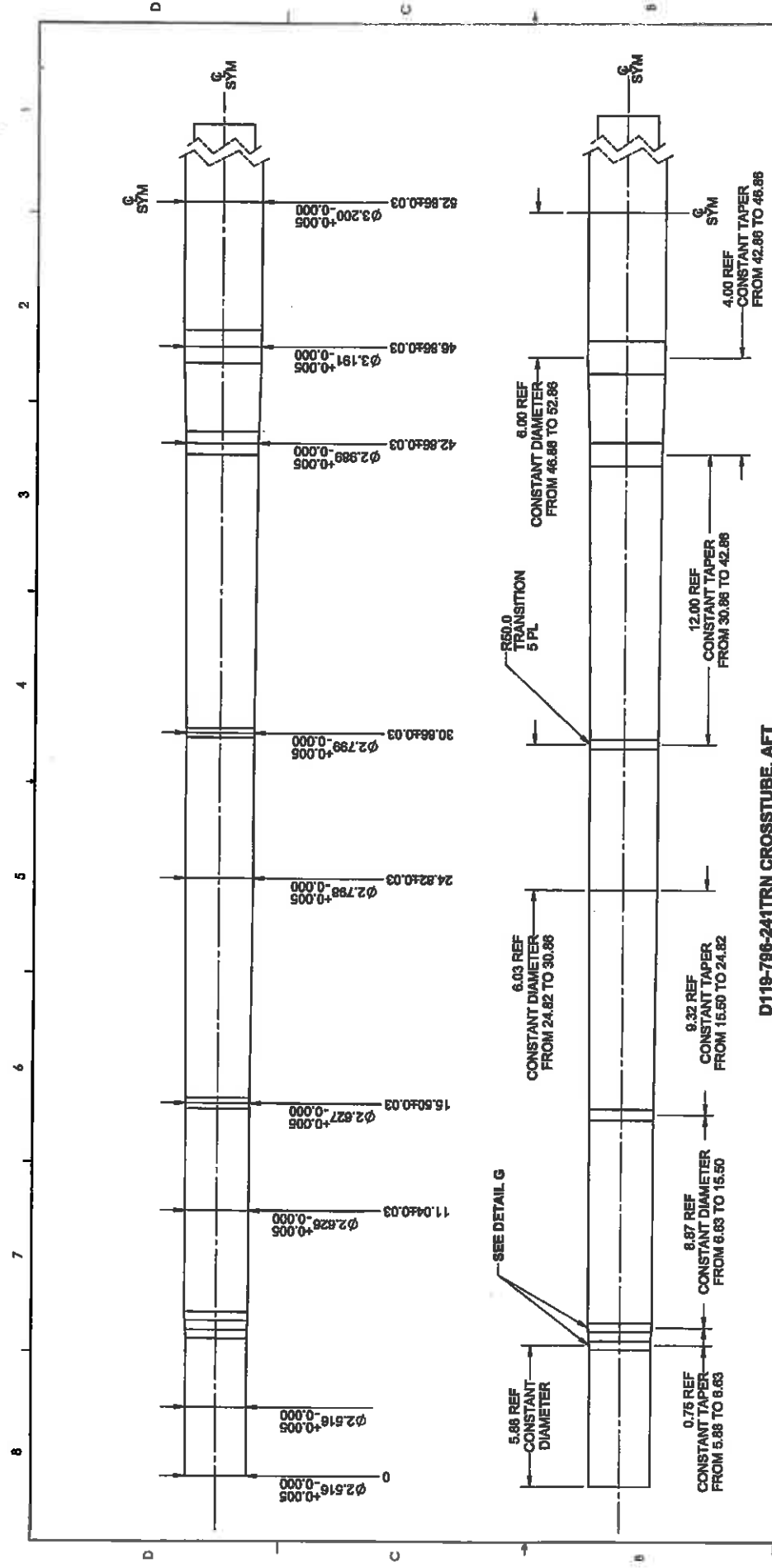
DESIGN	AP	ML	REV. J
DRAWN	JMH	DP	SHEET 5 OF 7
CHECKED	DP	WM	SCALE
MFG. APPR.	DP	WM	NTS
APPROVED	DP	WM	NTS
DATE	17.02.10		

DART AEROSPACE USA, INC.
KENT, WA

DRAWING NO.
D119-798-241

TITLE
XTUBE ASSY (AW119 MKII AFT)

DATE
17.02.10



D119-796-241TRN CROSSTUBE AFT

- NOTES:
- 1) MATERIAL: MANUFACTURE FROM D6023-108 (PREFERRED) OR D6009-108
 - 2) FINISH: NONE
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
 - 6) IDENTIFICATION: NONE
 - 7) WEIGHT: 24.17 lbs
 - 8) PART IS SYMMETRICAL ABOUT CENTERLINE

RELEASED
2017-05-04

APPROVED

DESIGN	AP	ML	JMH	DP	WM	DS	DATE
DRAWN							17.02.10
CHECKED							
MFG. APPR.							
APPROVED							
DE APPR.							

DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA

DRAWING NO. D119-796-241

REV. J

SHEET 6 OF 7

TITLE XTUBE ASSY (AW119 MKII AFT)

SCALE NTS

DATE 17.02.10

CONFIDENTIAL & DATA BY DART AEROSPACE LTD
NOT TO BE USED FOR ANY PURPOSES OUTSIDE OF THE SCOPE OF THE ORIGINAL INTENT
NO PART OF THIS DOCUMENT IS TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM.

mid 17 June 2019



DQA: _____ Date: _____
QA Closed: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

Work Order update only

Work Order: 170327		DISPOSITION		AGAINST DEPARTMENT/PROCESS					
Part No. D119-796-241		Rework Scrap Use-as-is ☒		Skid-tube Machining Thermoforming Large Fab		Cross tube Small Fab Finishing Composite		Water Jet Prod. Eng. Coord. Rec/Store/Packaging Supplier	
NCR No. 19-7140		Suspected Unapproved		QTY Effective: 1		MRB (QSI042) Approval 12 18/3/8 9:00		Engineering Quality Other	
Date: 14/3/8		Step #: 130		Disposition		Completed By 12 18/3/8 9:00		Lead hand / Supervisor Approval Verification	
Description Work Order Deviation		Disposition		Disposition		QC / QA Coordinator Approval		PD 13.07.05	
Tube is bent narrow		Cut at 25.23 high (+0.25) which results in 79.57 total width, which is acceptable. Additional height is acceptable because it raises g/c tail height.		Cut at 25.23 high (+0.25) which results in 79.57 total width, which is acceptable. Additional height is acceptable because it raises g/c tail height.		PD 13.07.05		PD 13.07.05	
Root Cause		FAULT CATEGORY		FAULT CATEGORY		FAULT CATEGORY		FAULT CATEGORY	
Environment		Pressure/Forced		Temperature/Cure		Power Loss/Surge		Positioned Wrong	
Design		Bending		Set-up		Folio/Program		Outside Dimensions	
Doc/Data		Centre Not Concentric		BOM/Route		Grain		Over/Under tolerance	
Equip/Tooling		Cracks		Broken/Damage/Defect		Weid		Part Incorrect	
Handling/Pre		Crimp/Kink/Ripple/Wave		Inspection Incomplete/Unqualified		Wrong Stock Pulled		Part Lost/Missing	
Material		Cuffs		Contamination		Out of Sequence		Part Moved	
Internal Transport		Crushing		Countersink		Off-set		Drawing	
Tribal Knowledge		Heat Treat		Cut Too Short		Mislabeled		Finish	
LOA		Wave/Twist in Tube		Instructions Incomplete/Unclear		Fit/Function		Misread	
Substation		Marks/Chatter		Drill Holes		Misaligned/off center		Turning Sequence	
Past Expiry Date		OTHER :		OTHER :		OTHER :		OTHER :	
Misidentified		OTHER :		OTHER :		OTHER :		OTHER :	



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER
PO039316

Supplier: SKY002-VC Skyservice 6120 Midfield Road Mississauga ON L5P 1B1 Canada Phone: 905-678-5636 Fax: 905-678-5841	PO No: PO039316 PO Date: 3/14/18 Due Date: 3/15/18 Purchase Order Revision: Revision Date: Ship-To Contact: Lavoie, Chantal Phone: clavoie@dartaero.com
Ship To: 1270 Aberdeen Street Hawkesbury ON K6A 1K7 Canada Phone: 613-632-5200	Via: Ground Pyrm Terms: Net 30 Freight Terms: Special Comments:

Items										
Line Item	Job	Part	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	171230	D119-796-141	Fwd Crosstube Installation Without Step (No Hardware) *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Liquid Penetrant Inspection as per QSI 038Or Issue P/O: _____ LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order	Firmed	3/15/18	1 pcs	0 pcs	1 pcs	\$131.875/pcs	\$131.88
	171232			Firmed	3/15/18	1 pcs	1 x 0 pcs	1 pcs	\$131.875/pcs	\$131.88
	171243			Firmed	3/15/18	1 pcs	1 x 0 pcs	1 pcs	\$131.875/pcs	\$131.88
Sub Total:						3	0	3		\$395.63
2	170326	D119-796-241	Aft Crosstube Installation Without Step (No Hardware) *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***	Firmed	3/15/18	1 pcs	0 pcs	1 pcs	\$131.875/pcs	\$131.88
	170327			Firmed	3/15/18	1 pcs	1 x 0 pcs	1 pcs	\$131.875/pcs	\$131.88
	170328			Firmed	3/15/18	1 pcs	1 x 0 pcs	1 pcs	\$131.875/pcs	\$131.88
	170329			Firmed	3/15/18	1 pcs	1 x 0 pcs	1 pcs	\$131.875/pcs	\$131.88
	173744			Firmed	3/15/18	1 pcs	1 x 0 pcs	1 pcs	\$131.875/pcs	\$131.88
Sub Total:						5	0	5		\$659.38
Grand Total:										\$1,055.00

Order Notes *reid AT 18/03/15*



skyservice

Work Order Traveler

Sky Service F.B.O. Inc.

10105 Ryan Avenue, Dorval, Quebec, H9P 1A2

TCCA AMO 53-89 / EASA 145.7142 / BDA AMO 385

WO #: MWO35296	Customer: Dart Aerospace Ltd.	Dept: NDT YUL	Reference: PO039316
Descr:	PN:	S/N:	Qty: 1
Make:	Model:	Reg:	A/C S/N:
TSN:	CSN:	TSO:	

Task: UNSCHEDULED	Sequence: 1
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Work Required:

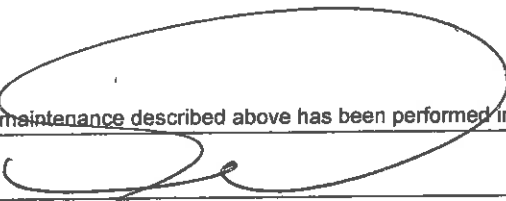
CARRY OUT NDT ON 8 CROSSTUBES AS PER PO039316

5 AFT CROSSTUBES, P/N# D119-796-241 , J/S# 170326 , 170327 , 170328 , 170329 , 173744

3 FWD CROSSTUBES , P/N# D119-796-141 , J/S# 171230 , 171232 , 171243

Action Taken:						Date:	Initial/Stamp:
LPI C/O IAW ASTM E-1417M-13						MAR 14 2018	 
NO CRACK FOUND							
PEN. ZL-56, MPO13600, CLEANER SKC-S MPO13923 , DEV. MPO11715 , UV LIGHT M-20142							
Description	Location	P/N	Qty	Batch	S/N Off	S/N On	

I certified that the maintenance described above has been performed in accordance with the applicable standard of airworthiness.

Signature: 	ACA/SCA Stamp 	Date: MAR 14 2018
Name: RAFIK MELIKIAN		